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**Table A-1. 2010 Impaired Waterbodies, Impairment Causes, Impaired Uses, and Impairment Cause Status in the Landusky TPA**

<b>Waterbody &amp; Location Description</b>	<b>Waterbody ID</b>	<b>Impairment Cause</b>	<b>TMDL Pollutant Category</b>	<b>Impaired Use(s)</b>	<b>Impairment Cause Status</b>
<b>ALDER GULCH,</b> headwaters to mouth (Ruby Creek)	MT40E002_050	Cadmium	Metals	Aquatic Life Warm Water Fishes	Cadmium TMDL
		Copper	Metals	Aquatic Life Warm Water Fishes	Copper TMDL
		Lead	Metals	Aquatic Life Warm Water Fishes	Lead TMDL
		Mercury	Metals	Aquatic Life Warm Water Fishes	Mercury TMDL
		Selenium	Metals	Aquatic Life Warm Water Fishes	Selenium TMDL
		Zinc	Metals	Aquatic Life Warm Water Fishes	Zinc TMDL
		pH	pH/Acidity/Caustic Conditions	Aquatic Life Warm Water Fishes	Addressed through cadmium TMDL
		Alteration in stream-side or littoral vegetative covers	Non-pollutant	Aquatic Life Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
<b>BEAVER CREEK,</b> headwaters to Fort Belknap Reservation boundary	MT40M001_011	Cadmium	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		Iron	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		Lead	Metals	Aquatic Life Warm Water Fishes	Lead TMDL

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<b>Waterbody &amp; Location Description</b>	<b>Waterbody ID</b>	<b>Impairment Cause</b>	<b>TMDL Pollutant Category</b>	<b>Impaired Use(s)</b>	<b>Impairment Cause Status</b>
<b>BIG HORN CREEK, SOUTH FORK,</b> Zortman Mine to Fort Belknap Reservation boundary	MT40I001_030	Aluminum	Metals	Aquatic Life, Cold Water Fishes	Addressed by TMDL
		Arsenic	Metals	Aquatic Life Cold Water Fishes Drinking Water	Addressed by TMDL
		Cadmium	Metals	Aquatic Life, Cold Water Fishery	Not impaired based on updated assessment
		Nickel	Metals	Aquatic Life Cold Water Fishes Drinking Water	Addressed by TMDL
		Zinc	Metals	Aquatic Life Cold Water Fishes	Addressed by TMDL
<b>KING CREEK,</b> headwaters to Fort Belknap Reservation boundary	MT40I001_040	Selenium	Metals	Aquatic Life, Cold Water Fishery	Not impaired based on updated assessment
		Alteration in stream-side or littoral vegetative covers	Non-pollutant	Aquatic Life, Cold Water Fishery	Not yet addressed by a TMDL or restoration plan
		Physical substrate habitat alterations	Non-pollutant	Aquatic Life, Cold Water Fishery	Not yet addressed by a TMDL or restoration plan
<b>LODGE POLE CREEK,</b> headwaters to Fort Belknap Reservation boundary	MT40I001_050	Cadmium	Metals	Aquatic Life, Cold Water Fishery	Addressed by TMDL
		Mercury	Metals	Aquatic Life, Cold Water Fishery Drinking Water	Addressed by TMDL

**Table A-1. 2010 Impaired Waterbodies, Impairment Causes, Impaired Uses, and Impairment Cause Status in the Landusky TPA**

<b>Waterbody &amp; Location Description</b>	<b>Waterbody ID</b>	<b>Impairment Cause</b>	<b>TMDL Pollutant Category</b>	<b>Impaired Use(s)</b>	<b>Impairment Cause Status</b>
<b>MILL GULCH,</b> headwaters to mouth (Rock Creek)	MT40E002_100	Copper	Metals	Aquatic Life Drinking Water Warm Water Fishes	Addressed by TMDL
		Mercury	Metals	Aquatic Life Drinking Water Warm Water Fishes	Addressed by TMDL
		Lead	Metals	Aquatic Life Drinking Water Warm Water Fishes	Not impaired based on updated assessment
		Selenium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		pH	pH/Acidity/Caustic Conditions	Agriculture Aquatic Life Industrial Primary Contact Recreation	Addressed by Cu TMDL
		Alteration in stream-side or littoral vegetative covers	Non-pollutant	Aquatic Life Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
<b>MONTANA GULCH,</b> headwaters to mouth (Rock Creek)	MT40E002_010	Arsenic	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Cadmium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Copper	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		pH	pH/Acidity/Caustic Conditions	Aquatic Life Warm Water Fishes	Addressed by Cd TMDL

**Table A-1. 2010 Impaired Waterbodies, Impairment Causes, Impaired Uses, and Impairment Cause Status in the Landusky TPA**

<b>Waterbody &amp; Location Description</b>	<b>Waterbody ID</b>	<b>Impairment Cause</b>	<b>TMDL Pollutant Category</b>	<b>Impaired Use(s)</b>	<b>Impairment Cause Status</b>
<b>ROCK CREEK</b> , headwaters to mouth (Missouri River)	MT40E002_090	Cadmium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Copper	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Mercury	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Lead	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Selenium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Zinc	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		pH	pH/Acidity/Caustic Conditions	Aquatic Life Warm Water Fishes	Addressed by Cd TMDL
		Alteration in stream-side or littoral vegetative covers	Non-pollutant	Aquatic Life Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
<b>RUBY CREEK</b> , un-named tributary T25N R25E S21 to mouth (CK Creek)	MT40E002_060	Aluminum	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Cadmium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Copper	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Mercury	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Lead	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Selenium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Zinc	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		pH	pH/Acidity/Caustic Conditions	Aquatic Life Warm Water Fishes	Addressed by Cd TMDL

**Table A-1. 2010 Impaired Waterbodies, Impairment Causes, Impaired Uses, and Impairment Cause Status in the Landusky TPA**

<b>Waterbody &amp; Location Description</b>	<b>Waterbody ID</b>	<b>Impairment Cause</b>	<b>TMDL Pollutant Category</b>	<b>Impaired Use(s)</b>	<b>Impairment Cause Status</b>
<b>RUBY GULCH</b> , headwaters to confluence of Alder Gulch	MT40E002_070	Cadmium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Chromium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Copper	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		Mercury	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Lead	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		Selenium	Metals	Aquatic Life Warm Water Fishes	Addressed by TMDL
		Zinc	Metals	Aquatic Life Warm Water Fishes	Not impaired based on updated assessment
		pH	pH/Acidity/Caustic Conditions	Aquatic Life Warm Water Fishes	Addressed by Cd TMDL
<b>SULLIVAN GULCH</b> , headwaters to mouth (Rock Creek)	MT40E002_110	Alteration in stream-side or littoral vegetative covers		Aquatic Life Primary Contact Recreation Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
		Fish-Passage Barrier	Non-pollutant	Aquatic Life Primary Contact Recreation Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
		Other flow regime alterations	Non-pollutant	Aquatic Life Primary Contact Recreation Warm Water Fishes	Not yet addressed by a TMDL or restoration plan
		Physical substrate habitat alterations	Non-pollutant	Aquatic Life Primary Contact Recreation Warm Water Fishes	Not yet addressed by a TMDL or restoration plan

**Table A-1. 2010 Impaired Waterbodies, Impairment Causes, Impaired Uses, and Impairment Cause Status in the Landusky TPA**

Waterbody & Location Description	Waterbody ID	Impairment Cause	TMDL Pollutant Category	Impaired Use(s)	Impairment Cause Status
SWIFT GULCH CREEK, headwaters to mouth (South Big Horn Creek)	MT40I002_010	Aluminum	Metals	Aquatic Life, Cold Water Fishes	Addressed by TMDL
		Arsenic	Metals	Drinking Water	Addressed by TMDL
		Cadmium	Metals	Aquatic Life, Cold Water Fishes Drinking Water	Addressed by TMDL
		Copper	Metals	Aquatic Life, Cold Water Fishes	Addressed by TMDL
		Cyanide	Metals	Aquatic Life, Cold Water Fishes	Addressed by TMDL
		Iron	Metals	Aquatic Life, Cold Water Fishes	Addressed by TMDL
		Lead	Metals	Aquatic Life, Cold Water Fishes	Not impaired based on updated assessment
		Nickel	Metals	Aquatic Life, Cold Water Fishes Drinking Water	Addressed by TMDL
		Selenium	Metals	Aquatic Life, Cold Water Fishes	Not impaired based on updated assessment
		Thallium	Metals	Drinking Water	Addressed by TMDL
		Zinc	Metals	Aquatic Life, Cold Water Fishes Drinking Water	Addressed by TMDL
		pH	pH/Acidity/Caustic Conditions	Aquatic Life, Cold Water Fishes	Addressed by Cd TMDL



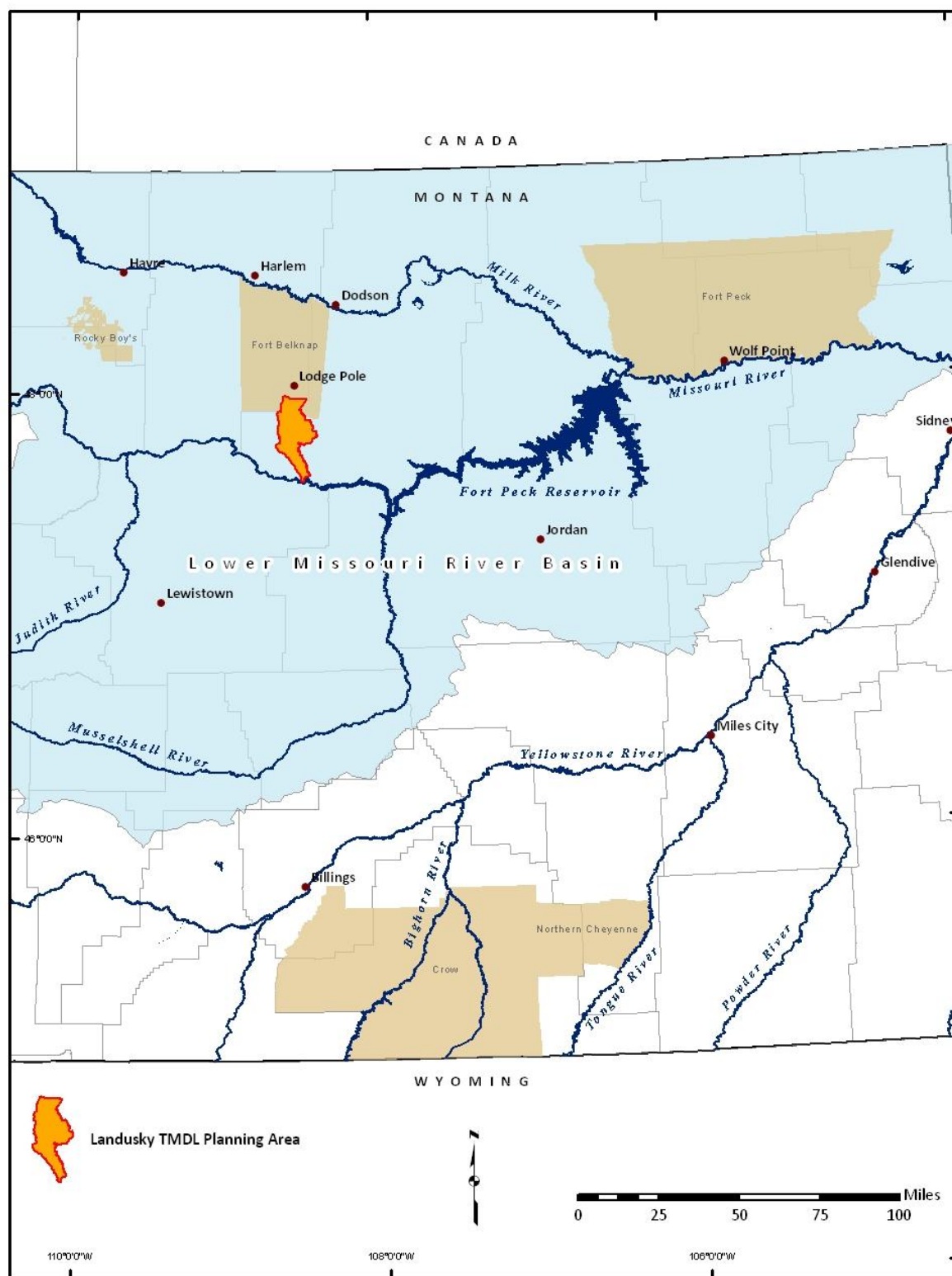
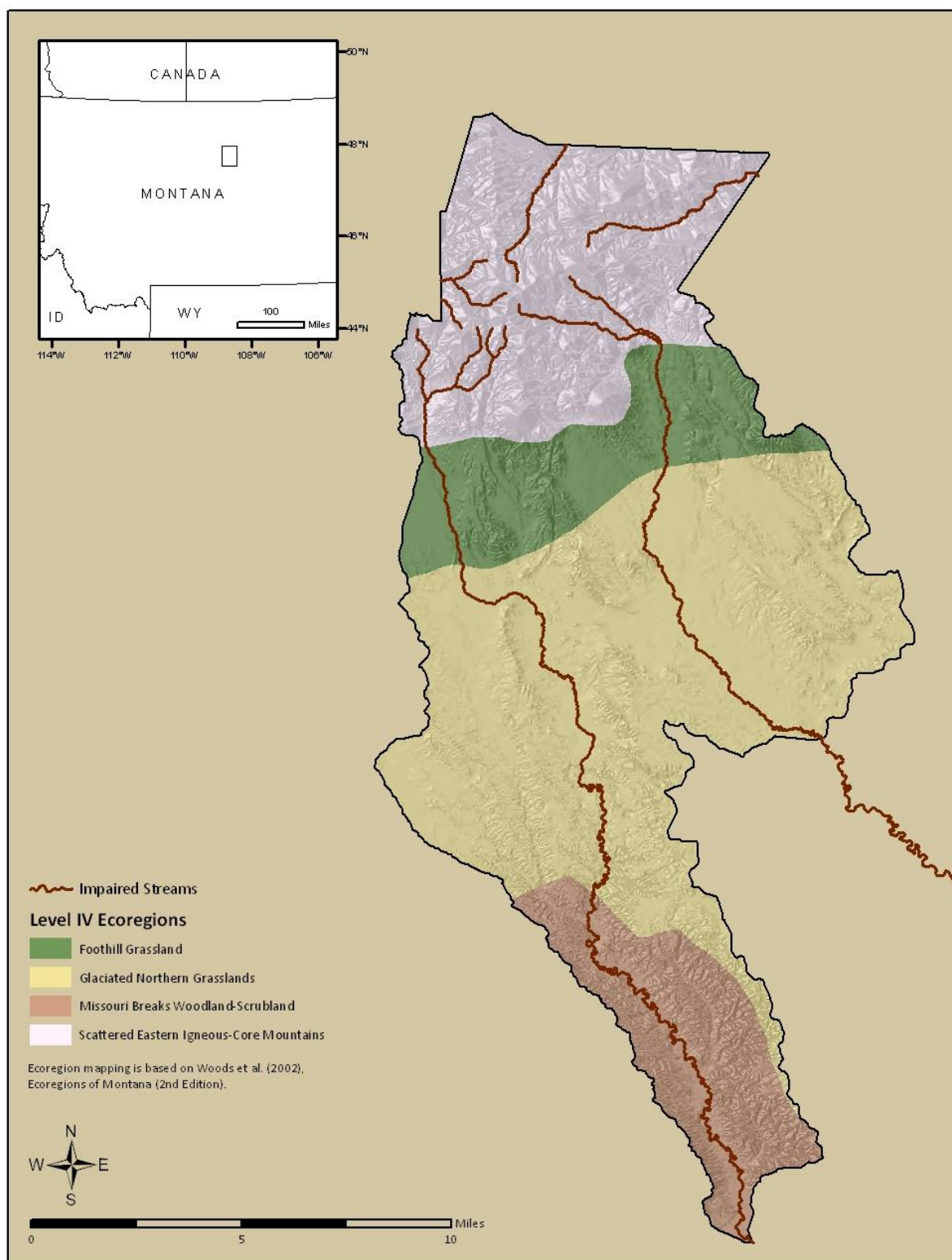
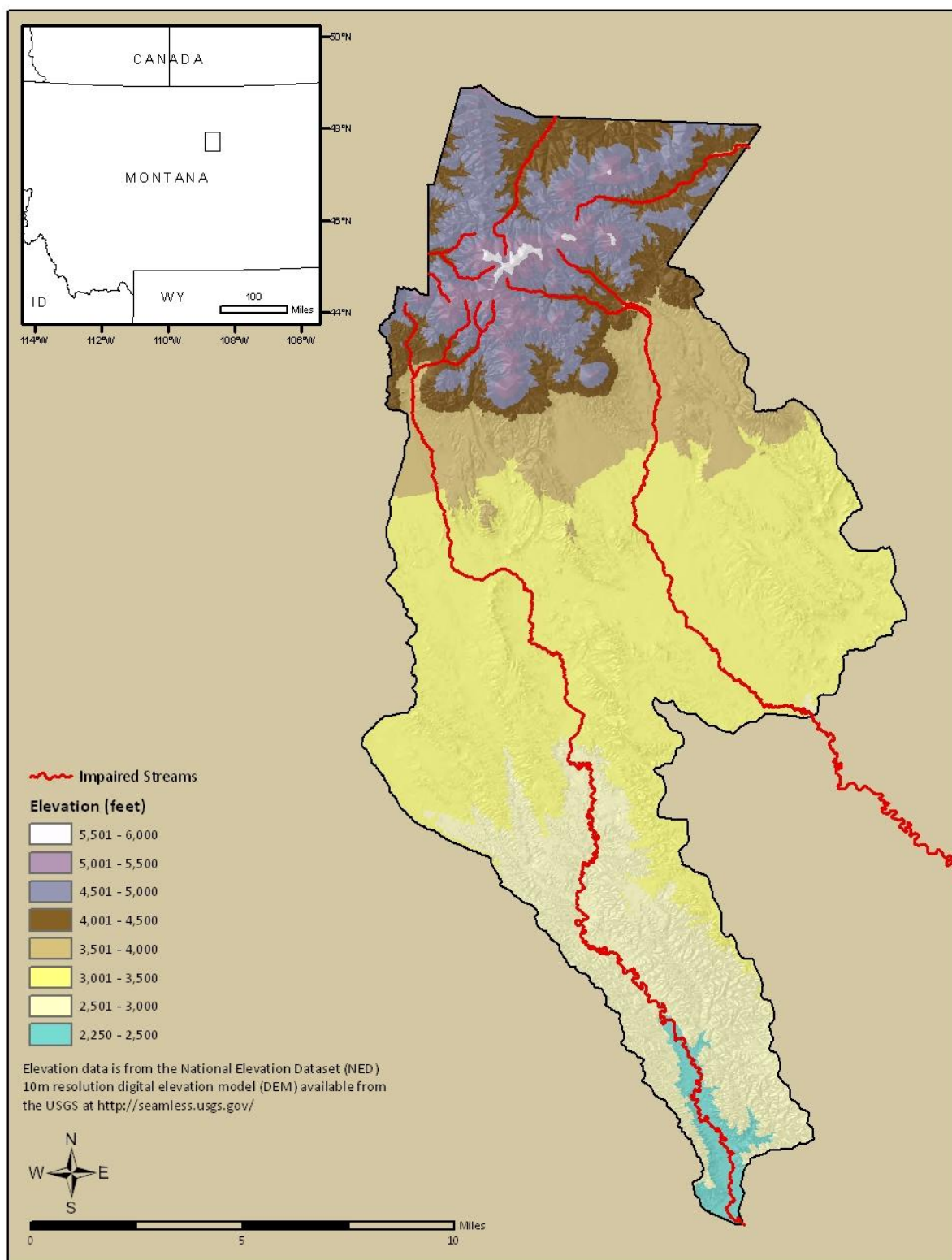


Figure A-1. Landusky TMDL Planning Area



**Figure A-2. Ecoregions**

**Figure A-3. Topography**

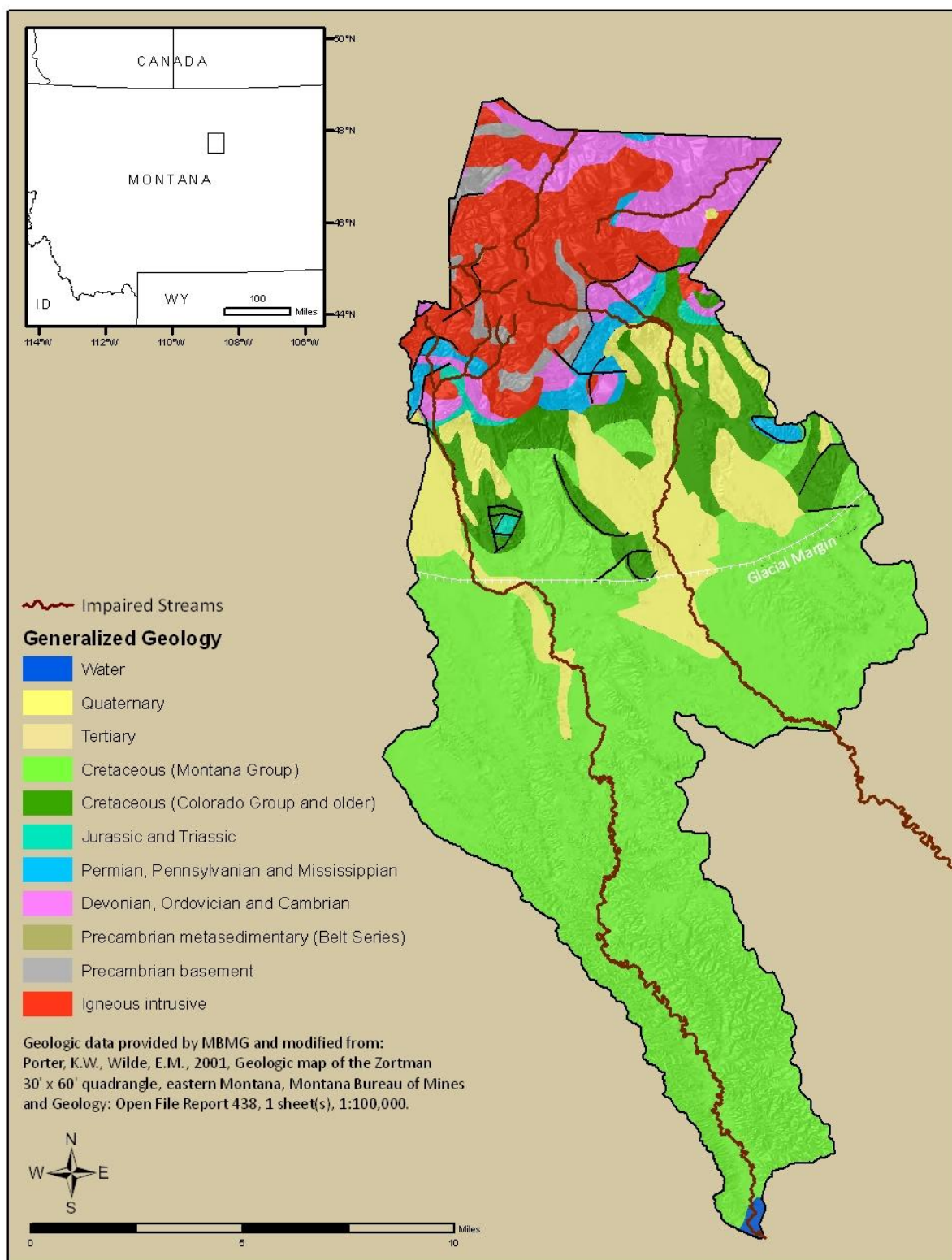
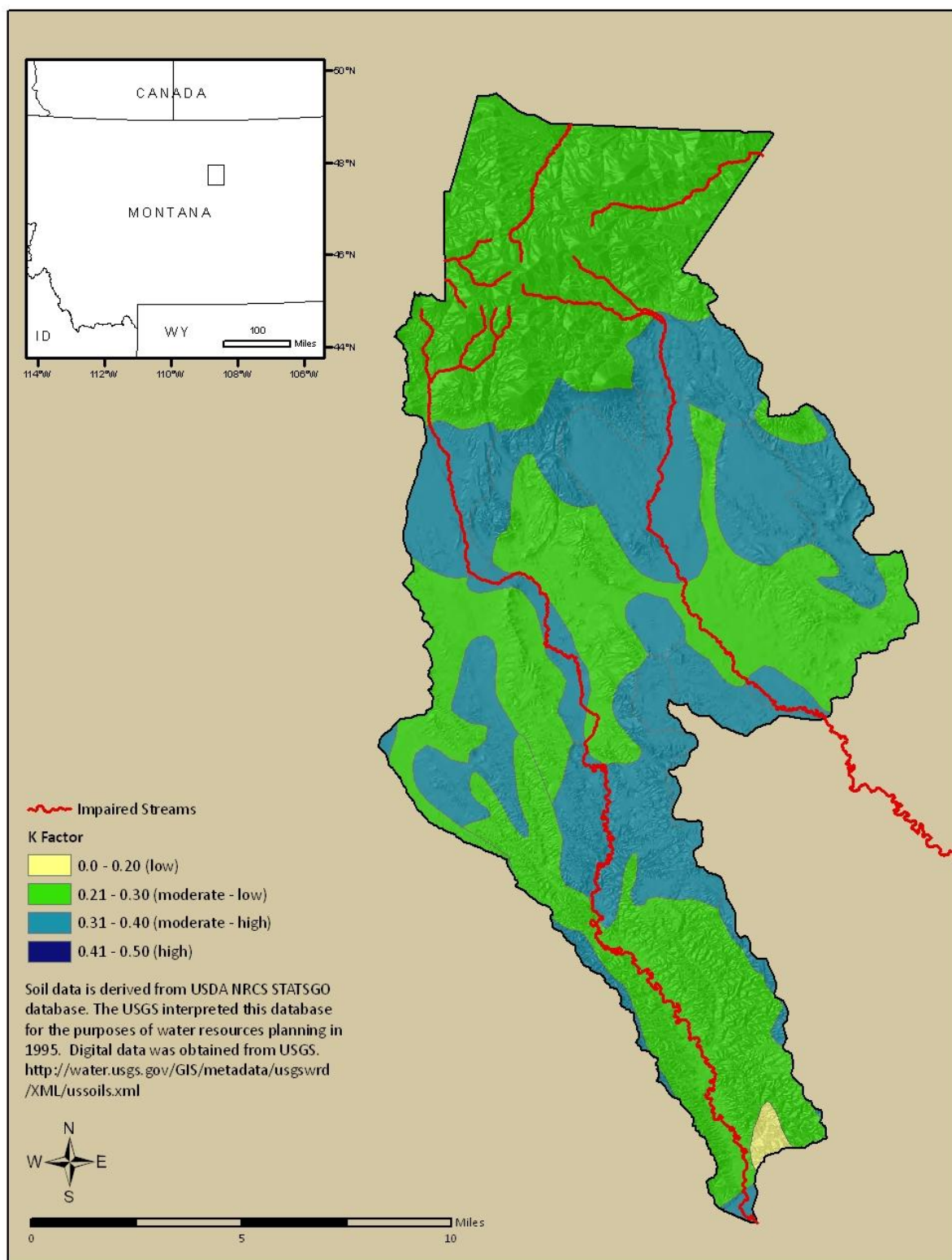


Figure A-4. Geology



**Figure A-5. Erodibility**

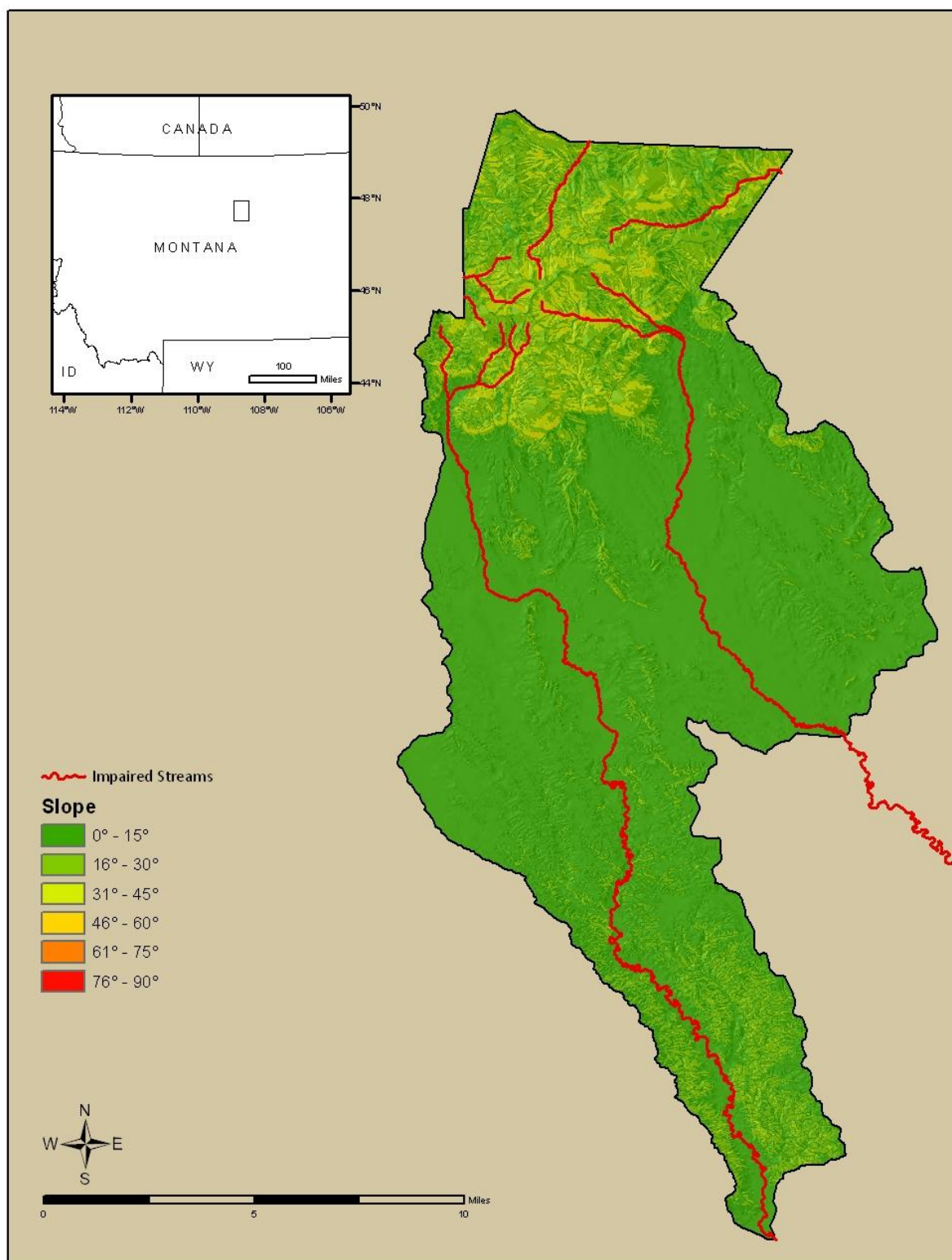
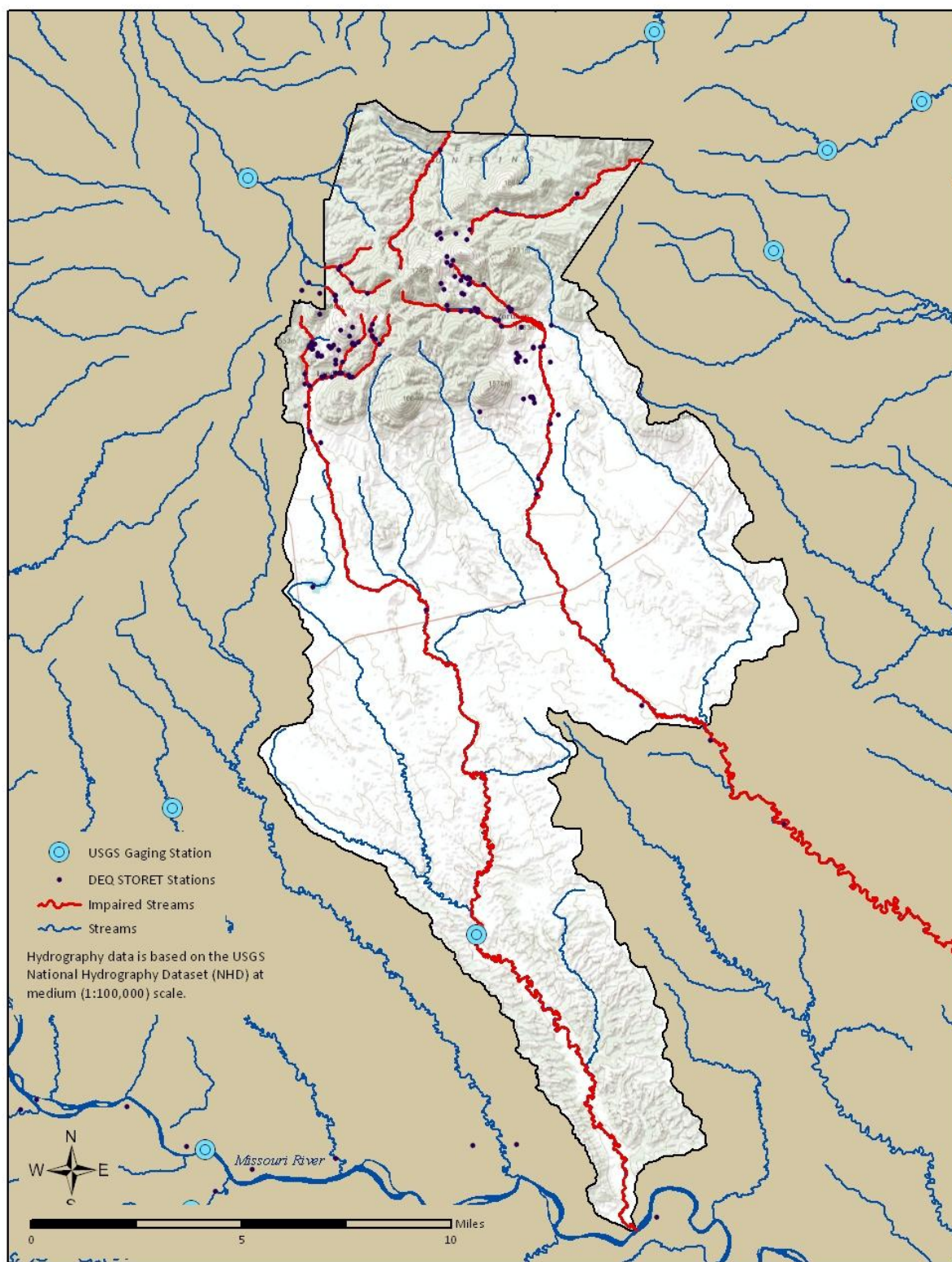


Figure A-6. Slope

**Figure A-7. Hydrography**



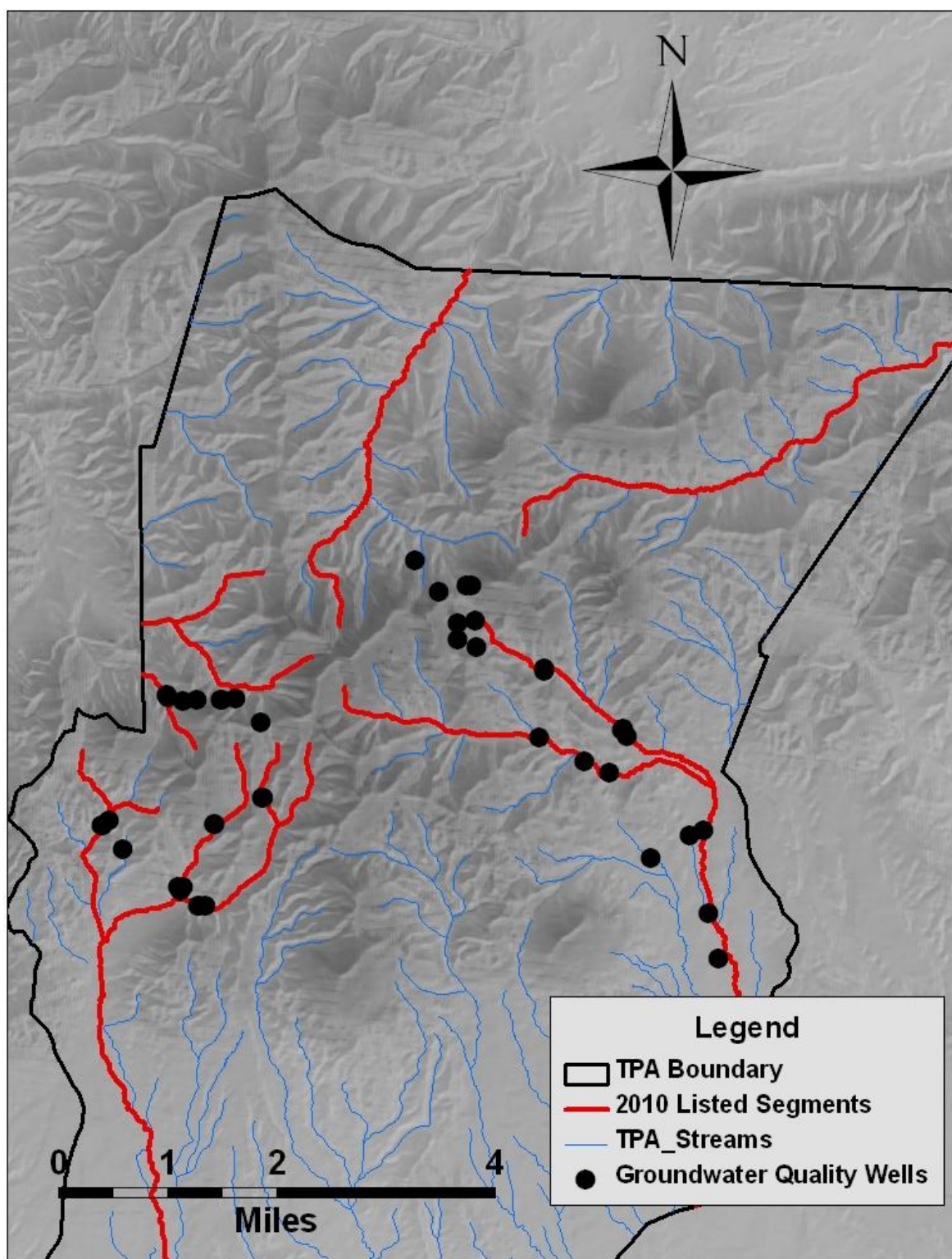
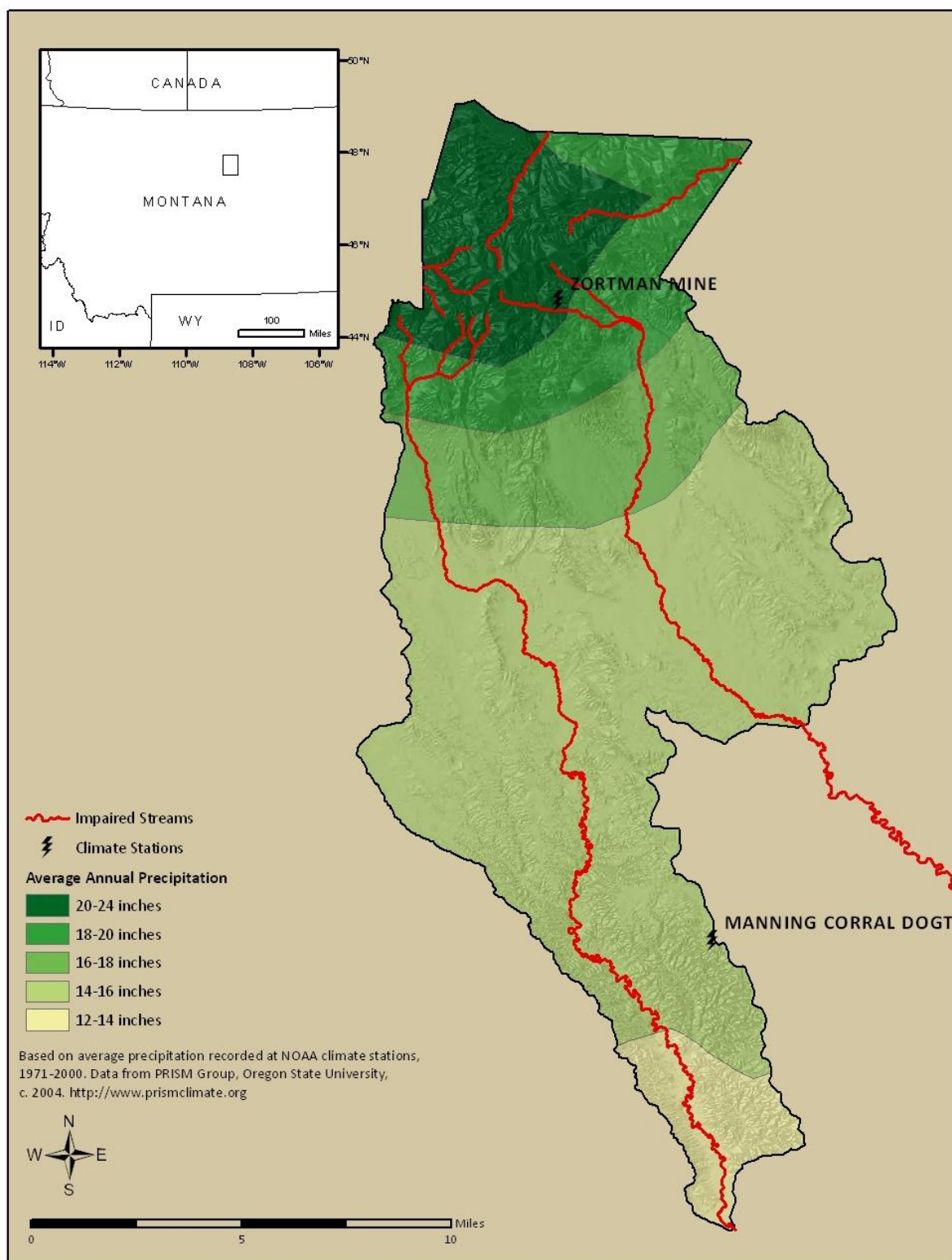
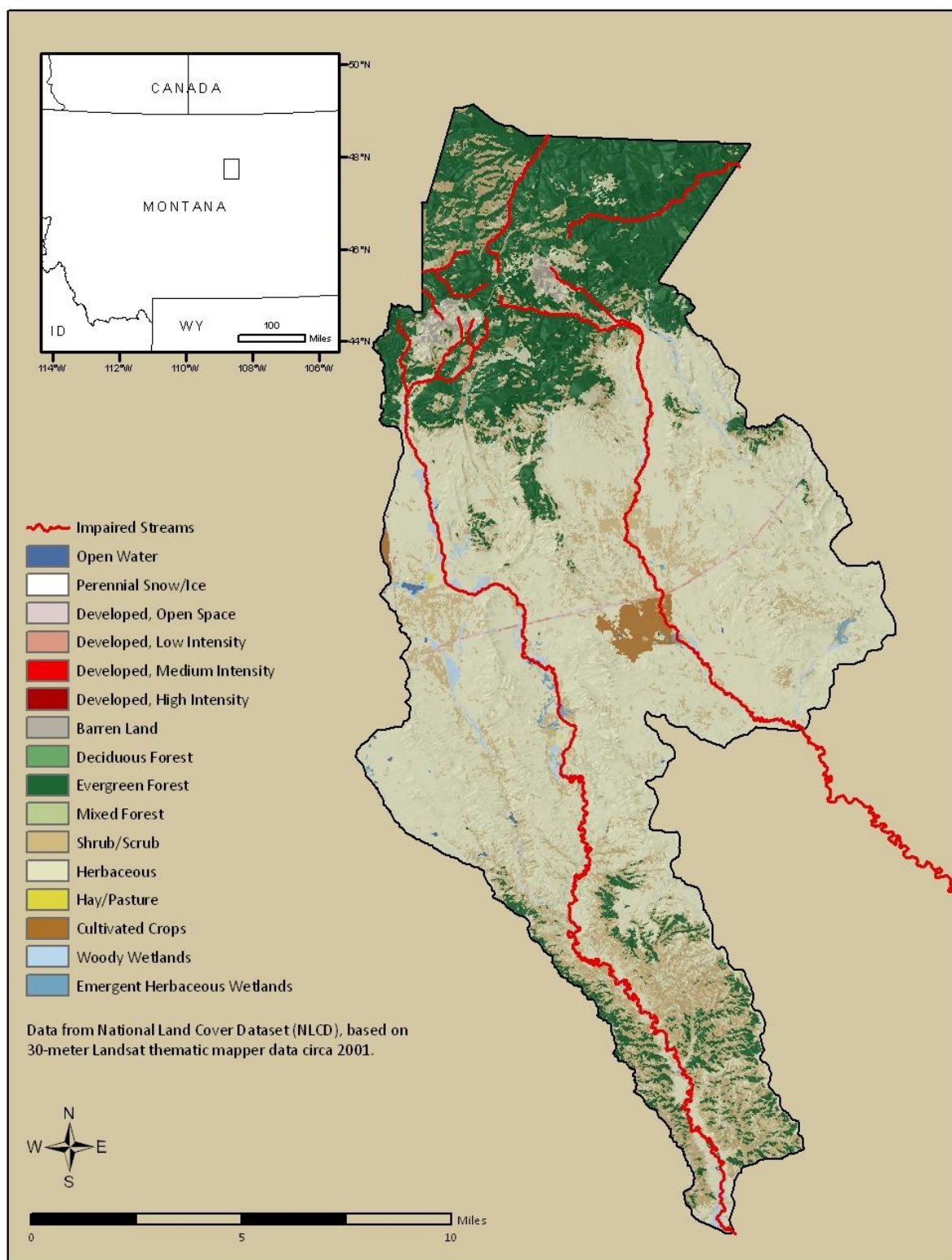
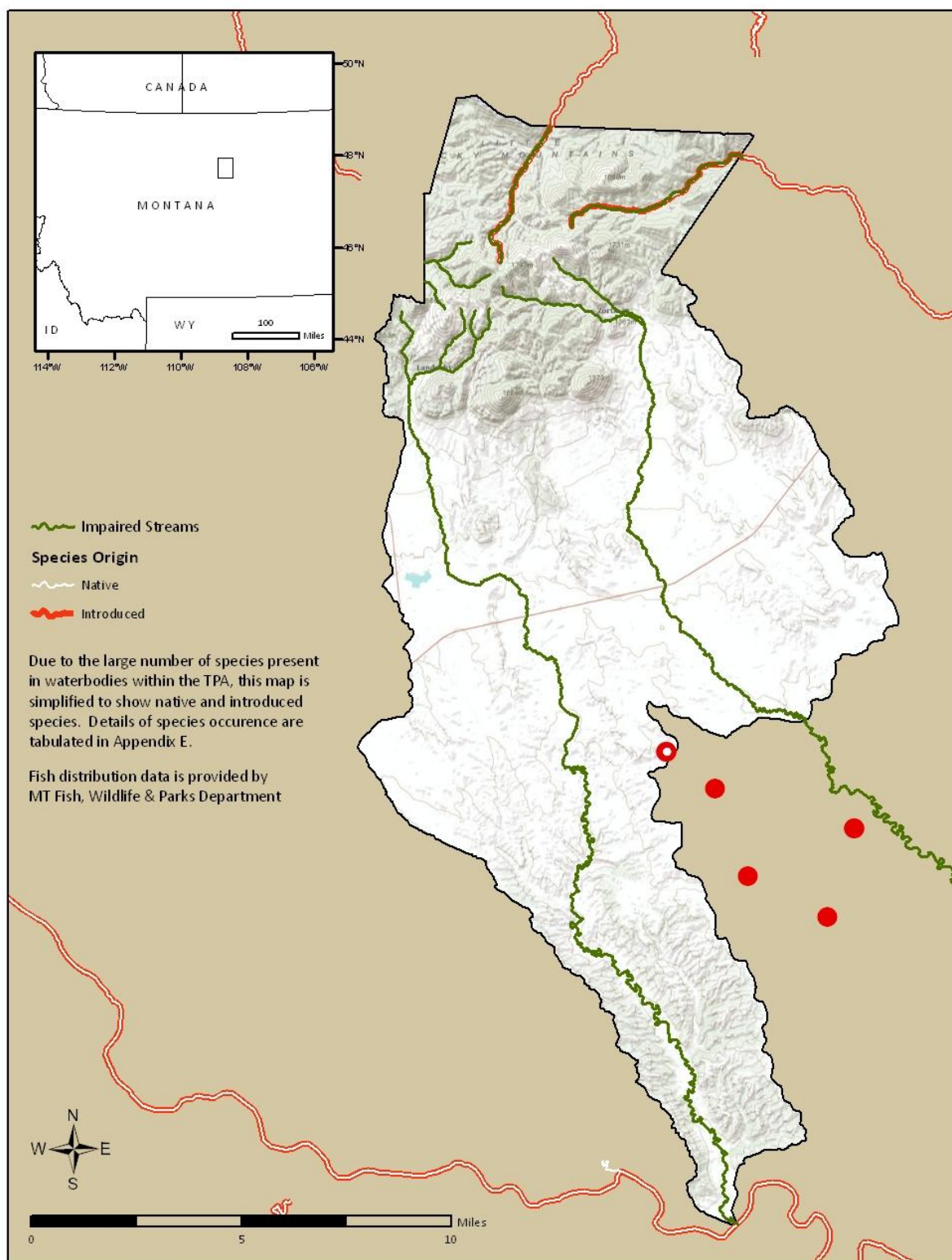


Figure A-8. Ground Water Quality



**Figure A-9. Annual Precipitation**

**Figure A-10. Land Cover**

**Figure A-11. Fish Distribution**



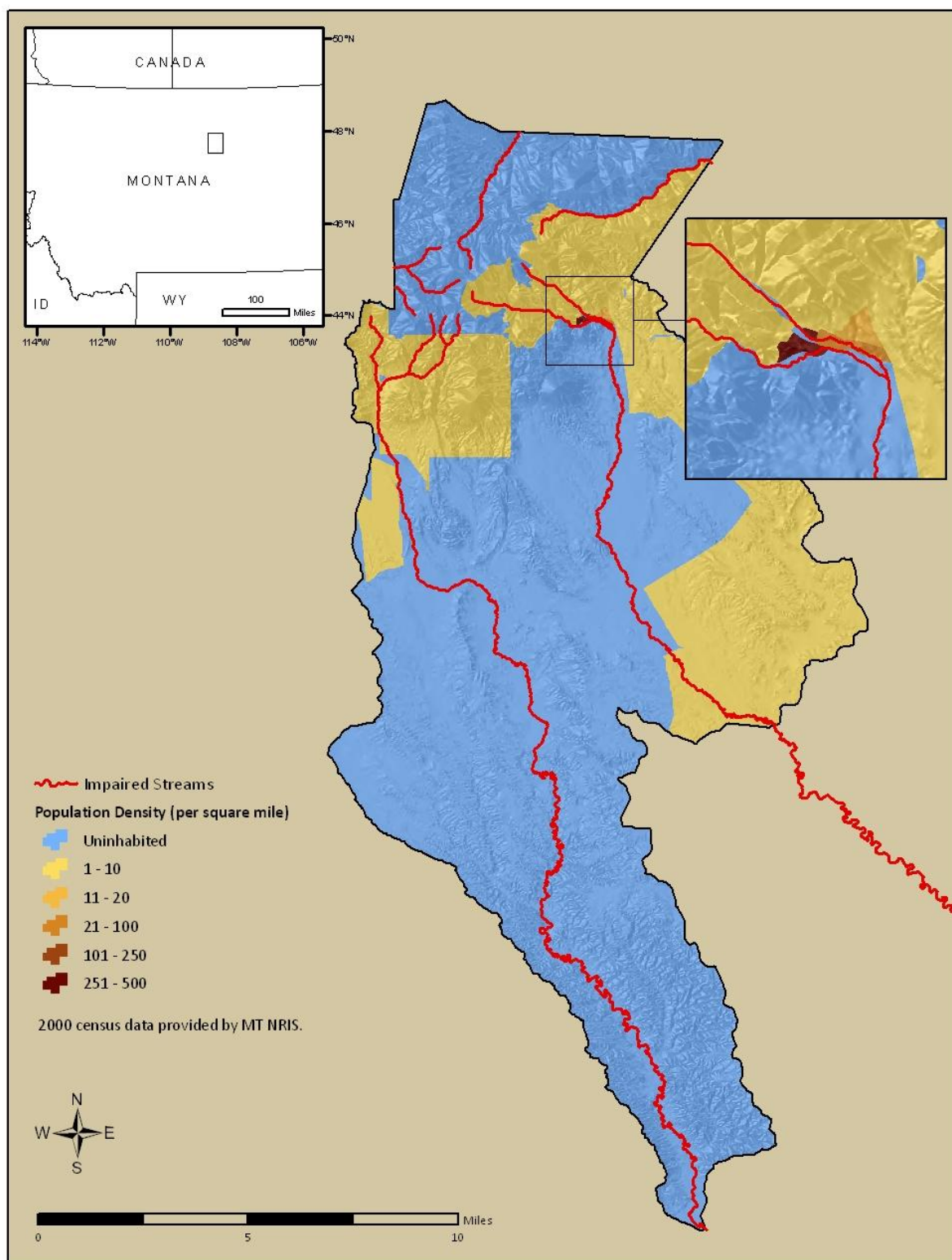
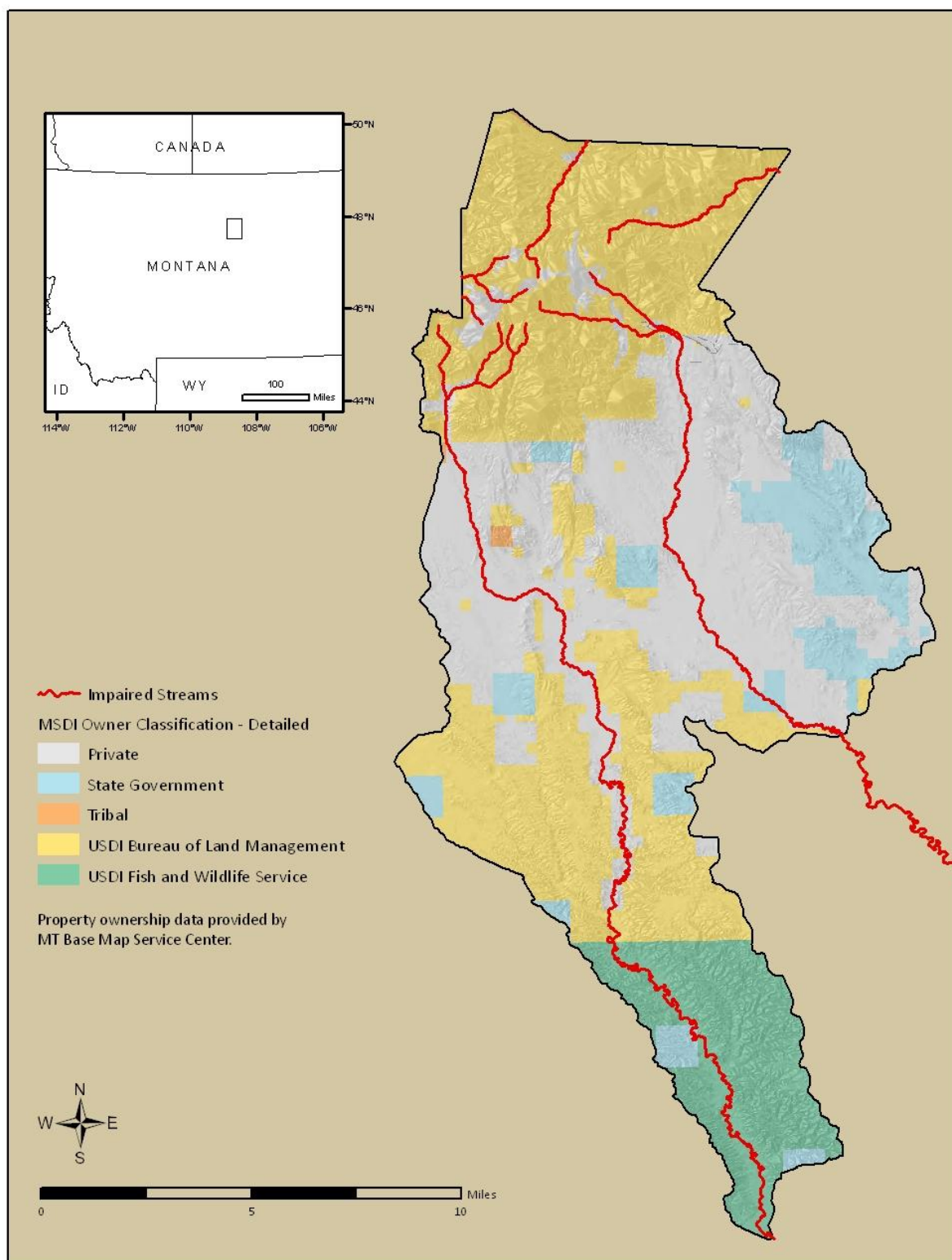


Figure A-12. Population Density

**Figure A-13. Ownership**

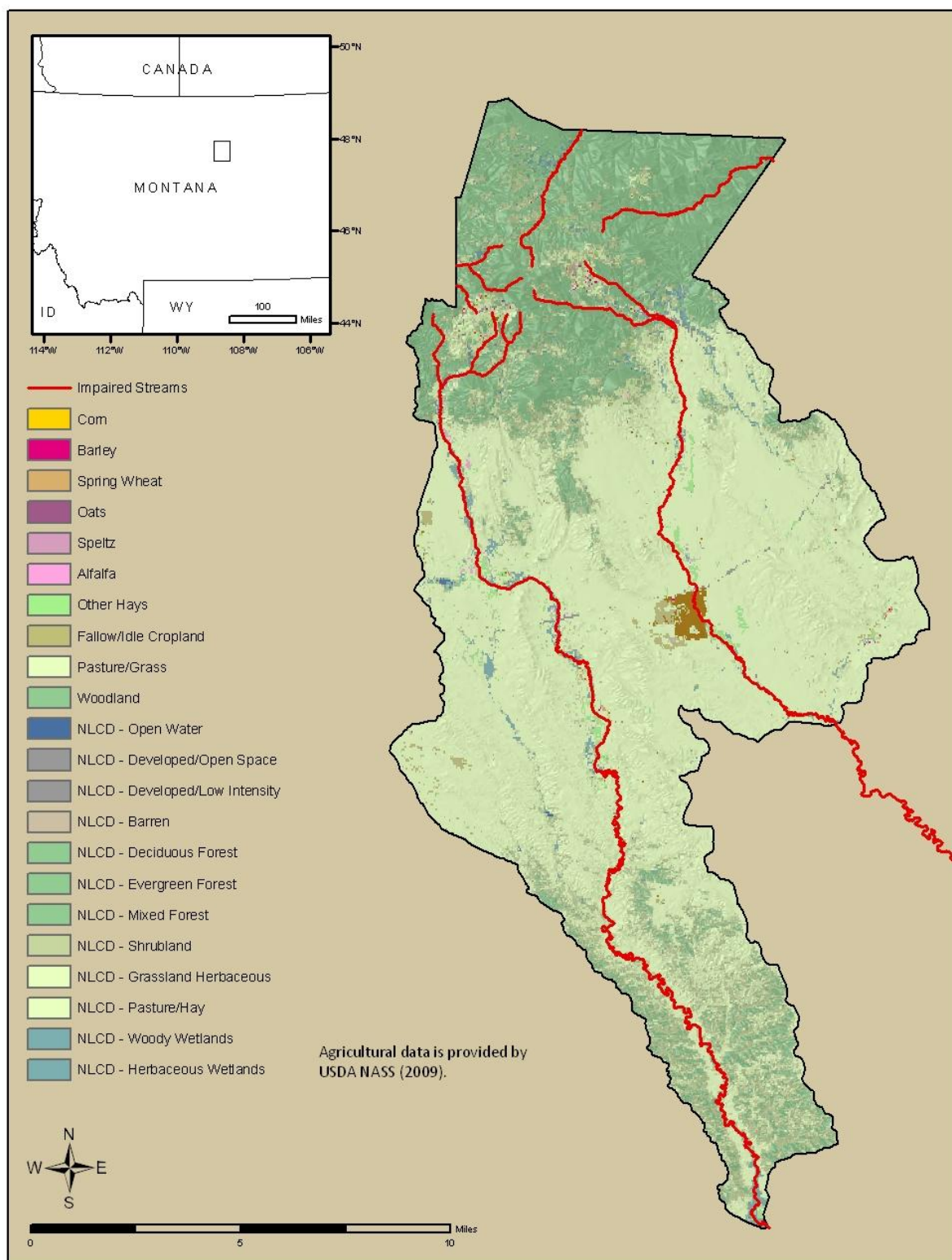


Figure A-14. Agricultural Use



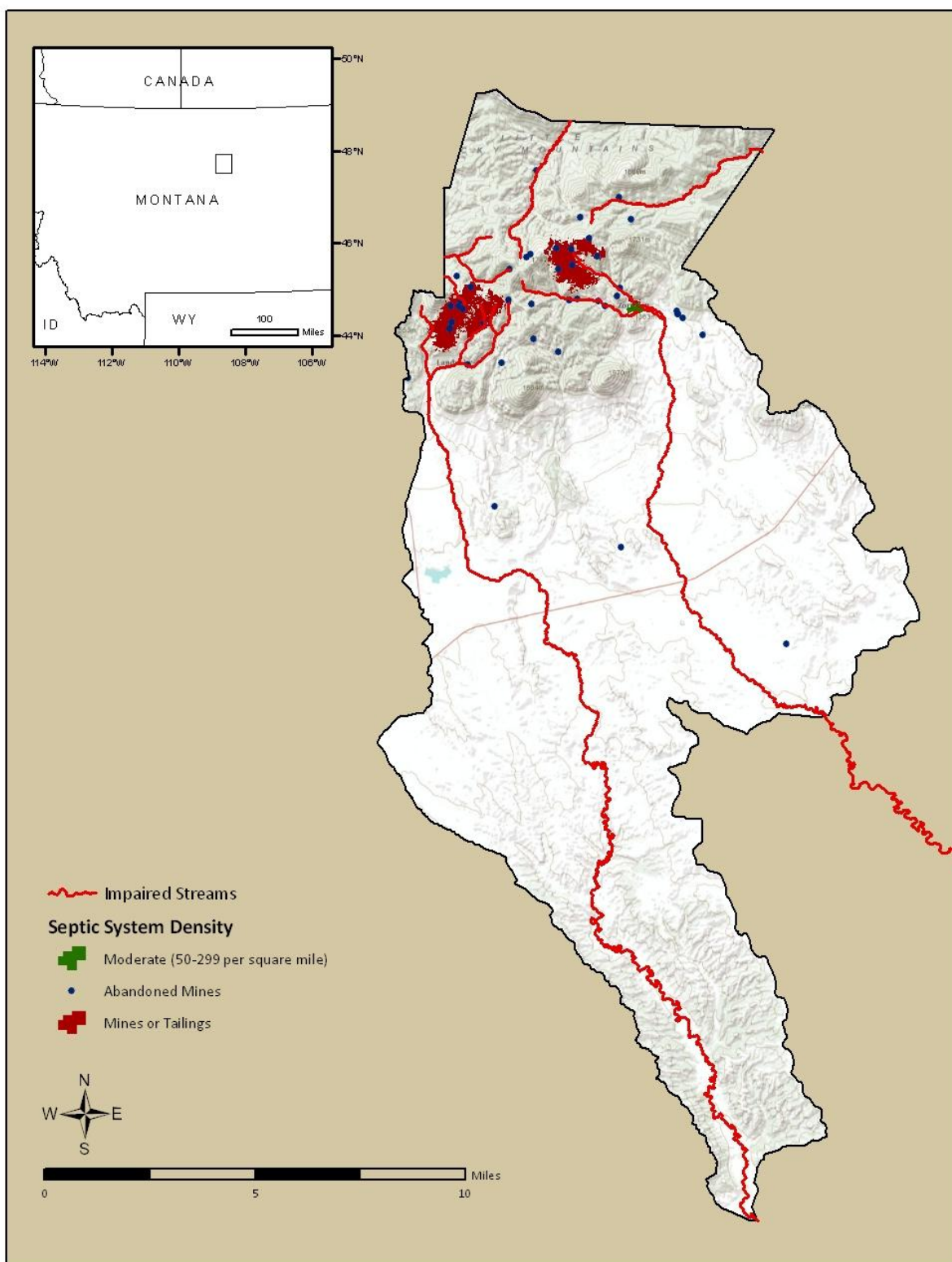


Figure A-15. Discharges

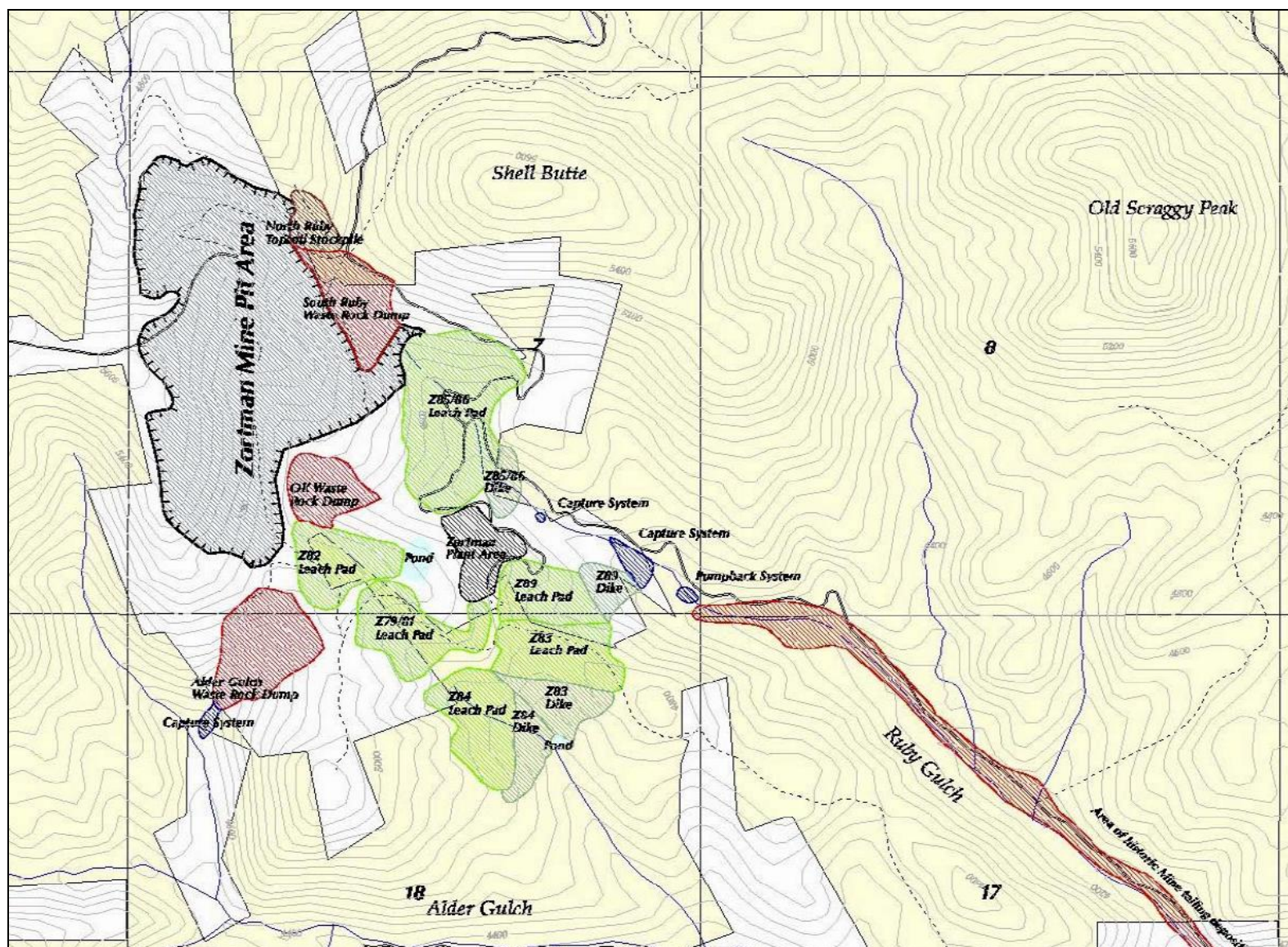


Figure A-16. Zortman Mine facilities map (Haight 2004).



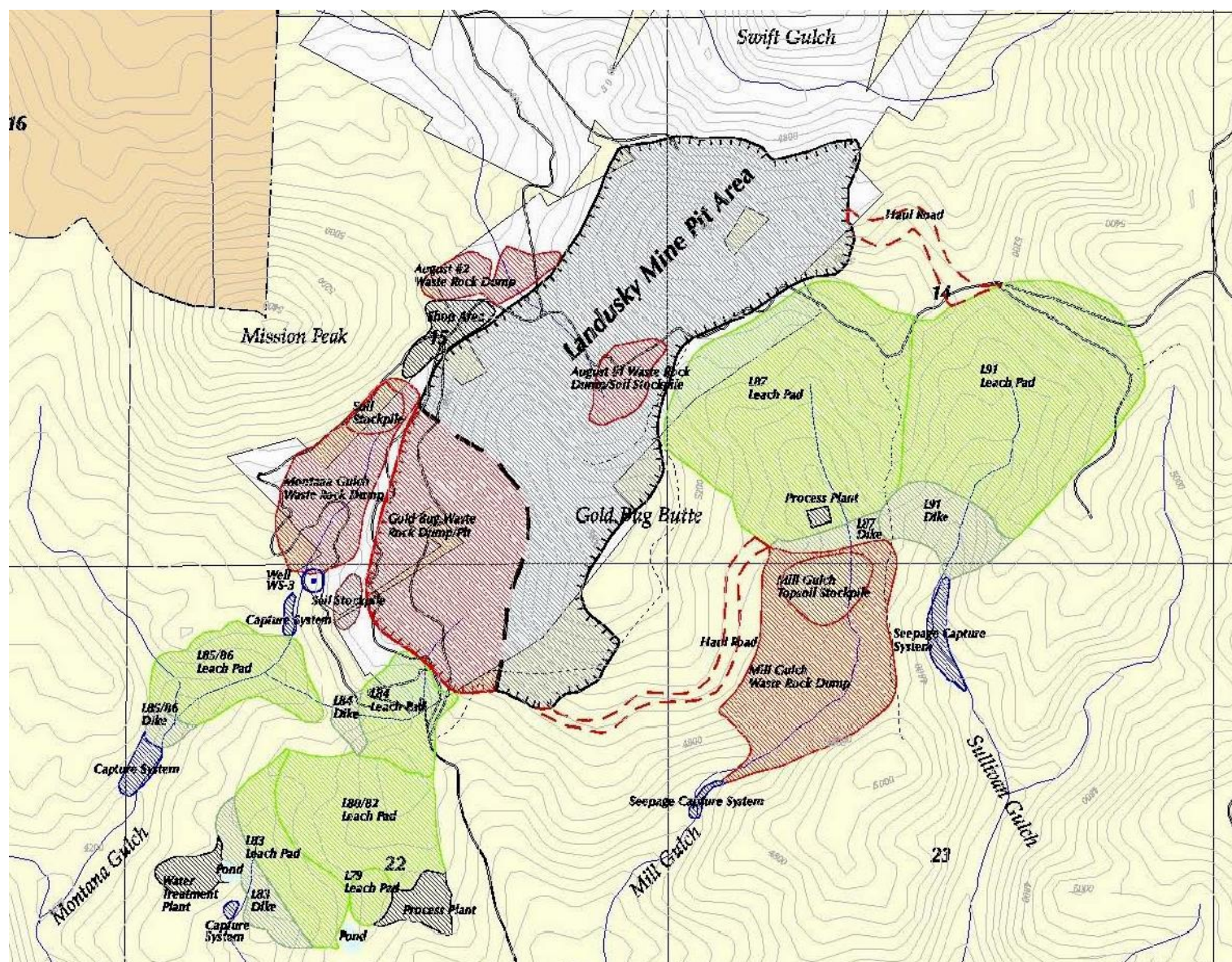


Figure A-17. Landusky Mine facilities map (Haight 2004).

